BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

| | | |
|---|---|---|
| In the matter of the amendment of ARM 17.8.740 pertaining to definitions and the adoption of New Rule I pertaining to mercury emission standards | ) ) ) ) ) | NOTICE OF PUBLIC HEARING ON PROPOSED AMENDMENT AND ADOPTION (AIR QUALITY) |

TO: All Concerned Persons

1. On _____, 2005, the Board of Environmental Review will hold a public hearing at [address], Montana, to consider the proposed amendment and adoption of the above-stated rules.

2. The Board will make reasonable accommodations for persons with disabilities who wish to participate in this public hearing or need an alternative accessible format of this notice. If you require an accommodation, contact the Board no later than 5:00 p.m., _____, 2005, to advise us of the nature of the accommodation that you need. Please contact the Board Secretary at P.O. Box 200901, Helena, Montana 59620-0901; phone (406) 444-2544; fax (406) 444-4386; or email ber@mt.gov.

3. The rule proposed to be amended provides as follows, stricken matter interlined, new matter underlined:

17.8.740 DEFINITIONS For the purposes of this subchapter:

(1) "Alternative mercury emission limit" means a mercury emission limit for a mercury-emitting generating unit, established by the department in a permit issued or modified pursuant to 75-2-211, MCA, in lieu of compliance with [NEW RULE I(1)(a) or (2)].

(1) remains the same, but is renumbered (2).

(3) "Commercial operation has begun" means the time when the owner or operator begins to supply electricity for sale.

(2) through (7) remain the same, but are renumbered (4) through (9).

(10) "Mercury" means mercury or mercury compounds in either a gaseous or particulate form.

(11) "Mercury-emitting generating unit" means any emitting unit at a facility for which an air quality permit is required pursuant to 75-2-211 or 75-2-217, MCA, that generates electricity and combusts coal in an amount greater than 10% of

its total heat input, calculated on a rolling 12-month time period.

(8) through (15)(b) remain the same, but are renumbered (12) through (19)(b).

AUTH: 75-2-111, 75-2-204, MCA
IMP: 75-2-211, MCA

4. The proposed new rule provides as follows:

RULE I MERCURY EMISSION STANDARDS FOR MERCURY-EMITTING GENERATING UNITS (1) Except as provided in (3), the owner or operator of a mercury-emitting generating unit for which a final permit has been issued under 75-2-211 or 75-2-217, MCA, by September 30, 2005, shall:

(a) beginning July 1, 2011, reduce mercury emissions from the mercury-emitting generating unit to:

(i) an emission rate equal to or less than 1.5 pounds of mercury per trillion Btu, calculated as a rolling 12-month average;

(ii) an emission rate equal to a 90% or greater reduction of mercury in the as-fired coal, as measured in pounds per trillion Btu, calculated as a rolling 12-month average, based on the weighted average of the mercury content in each shipment of coal received;

(iii) an emission rate equal to a 90% or greater reduction of mercury in the as-fired coal, as measured in pounds per trillion Btu, calculated as a rolling 12-month average, achieved by coal cleaning; or

(iv) an emission rate equal to a 90% or greater reduction of mercury achieved by replacing coal with another fuel or coal product that inherently emits at least 90% less mercury, as measured in pounds per trillion Btu, calculated as a rolling 12-month average, relative to the emissions of mercury generated by combustion of the coal type historically burned by the mercury-emitting generating unit. This demonstration must identify the coal seam where the coal historically burned was mined and the average concentration of mercury in the coal mined from that seam;

(b) submit an application to the department for a modification of the air quality permit for the facility pursuant to 75-2-211 or 75-2-217, MCA, to establish a mercury emission limit from (1)(a) as a condition of the permit by July 1, 2009;

(c) by July 1, 2010, operate equipment that is capable, as determined by the department, of meeting at least one of the standards in (1)(a).

(2) Except as provided in (3), the owner or operator of a mercury-emitting generating unit for which a final air

quality permit is issued pursuant to 75-2-211, MCA, after September 30, 2005, shall reduce mercury emissions from the mercury-emitting generating unit to:

(a) an emission rate equal to or less than 1.5 pounds of mercury per trillion Btu, calculated as a rolling 12-month average;

(b) an emission rate equal to a 90% or greater reduction of mercury in the as-fired coal, as measured in pounds per trillion Btu, calculated as a rolling 12-month average, based on the weighted average of the mercury content in each shipment of coal received;

(c) an emission rate equal to a 90% or greater reduction of mercury in the as-fired coal, as measured in pounds per trillion Btu, calculated as a rolling 12-month average, achieved by coal cleaning; or

(d) an emission rate equal to a 90% or greater reduction of mercury, achieved by replacing coal with another fuel or coal product that inherently emits at least 90% less mercury, as measured in pounds per trillion Btu, on a rolling 12-month average, relative to the emissions of mercury generated by combustion of the coal type historically burned by the majority of mercury-emitting generating units in the state. This demonstration must identify a coal seam from which coal historically has been used by mercury-emitting generating units in the state and the average concentration of mercury in the coal mined from that seam.

(3) If the owner or operator of a mercury-emitting generating unit properly installs and operates control technology or practices used to achieve a mercury emission rate requirement of (1)(a) or (2) and the control technology or practices fail to achieve the emission rate required in (1)(a) or (2), the owner or operator:

(a) shall notify the department of the failure by October 1, 2011, for mercury-emitting generating units subject to (1)(a), or within 15 months after commercial operation has begun for mercury-emitting generating units subject to (2); and

(b) may file an application with the department for a permit or permit modification pursuant to 75-2-211, MCA, to establish an alternative mercury emission limit. The application must be filed by January 1, 2012, for mercury-emitting generating units subject to (1)(a), or within 18 months after commercial operation has begun, for mercury-emitting generating units subject to (2), and must include all monitoring data for the mercury-emitting generating unit obtained pursuant to (12).

(4) The department may establish an alternative mercury emission limit only if the owner or operator applies for, or

has applied for, a permit that includes mercury specific control technology or practices designed to achieve the mercury emission rate requirement of (1)(a) or (2).

(5) An alternative mercury emission limit established in a permit issued pursuant to 75-2-211, MCA, expires five years after the date of the department's decision establishing the alternative mercury emission limit.

(6) The owner or operator of a mercury-emitting generating unit, for which the department has established an alternative mercury emission limit, may file an application with the department for a modification of the air quality permit for the facility pursuant to 75-2-211, MCA, to establish a new alternative mercury emission limit. The application must be filed with the department at least three months prior to expiration of the alternative mercury emission limit.

(7) For any application for a new alternative mercury emission limit under (6), the department shall conduct a review of the mercury-emitting generating unit's existing alternative mercury emission limit and may impose the same, or a more stringent, alternative mercury emission limit, based upon data regarding the demonstrated control capabilities of the type of control technology installed and operated at the mercury-emitting generating unit.

(8) If an owner or operator has notified the department of failure to comply with (1)(a) or (2), applies for an alternative mercury emission limit, and operates and maintains the mercury-emitting generating unit, including any associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimization of mercury emissions, the department may not initiate any enforcement action for violation of (1)(a) or (2) between the date when (1)(a) or (2) became applicable and the date of the department's decision on the application for an alternative emission limit, if the department determines that all requirements for an alternative emission limit are met. In determining whether the owner or operator of the mercury-emitting generating unit has operated and maintained the mercury-emitting generating unit in a manner consistent with good air pollution control practices for minimization of mercury emissions, the department may review the emission monitoring results and operating and maintenance procedures and records for the unit, inspect the mercury-emitting generating unit, and use any other relevant information.

(9) If more than one mercury-emitting generating unit is located at a facility, the owner or operator may demonstrate compliance with the requirements of (1)(a) or (2) on a facility-wide basis. An owner or operator choosing to

demonstrate compliance with this rule on a facility-wide basis shall report the information required in (13) on a facility-wide basis.

(10) The owner or operator of a mercury-emitting generating unit choosing to comply with (1)(a)(ii), (1)(a)(iii), (1)(a)(iv), (2)(b), (2)(c) or (2)(d) shall submit to the department, within 60 days after the end of each calendar quarter, an analysis of the mercury content in each shipment of coal received during the quarter. Coal product shipment receipts from the fuel supplier that guarantee the average mercury concentration of the fuel may be used.

(11) The owner or operator of a mercury-emitting generating unit choosing to comply with (1)(a)(iii) or (2)(c) shall submit to the department, within 60 days after the end of each calendar quarter, an analysis of the mercury content in each cleaned shipment of coal received during the quarter. Coal product shipment receipts from the fuel supplier that guarantee the average mercury concentration of the fuel may be used.

(12) The owner or operator of a mercury-emitting generating unit shall demonstrate compliance with any mercury emission rate applicable under this rule or alternative emission rate established by the department through the direct monitoring of Hg emissions on a continuous basis. Any continuous emissions monitors used must be operated in compliance with 40 CFR Part 60 Appendix B.

(13) The owner or operator of any mercury-emitting generating unit shall report to the department within 60 days after the end of each calendar quarter, on forms as may be prescribed by the department:

(a) the monthly average mercury emission rate or monthly average mercury emission reduction rate, whichever is applicable, for each month of the quarter; and

(b) the percentage of time the direct monitoring method was operating during the quarter.

(14) This rule does not apply to any mercury-emitting generating unit for which the department has issued a permit pursuant to 75-2-211 as of October 1, 2005, that requires installation of an activated carbon injection system or equivalent technology as approved by the department, for mercury control, provided the terms of the permit issued as of October 1, 2005, related to mercury control are being met.

AUTH: 75-2-203, 75-2-204, 75-2-211, MCA
IMP: 75-2-211, MCA

REASON: Montana's Constitution, Article IX, Section 1, says: "The State and each person shall maintain and improve a

clean and healthful environment in Montana for present and future generations." Article II, Section 3 of the Montana Constitution says, "All persons are born free and have certain inalienable rights. They include the right to a clean and healthful environment . . . ." The Montana Supreme Court addressed this provision of the constitution when it said:

"We conclude, based on the eloquent record of the Montana Constitutional Convention that to give effect to the rights guaranteed by Article II, Section 3, and Article IX, Section 1 of the Montana Constitution they must be read together and consideration given to all of the provisions of Article II, Section 1 as well as the preamble of the Montana Constitution. In doing so, we conclude that the delegates' intention was to provide language and protections which are both anticipatory and preventative."

Montana Environmental Information Center v. Department of Environmental Quality, 1999 MT 248, ¶77.

The goals and policies of the constitution are carried over into the Clean Air Act of Montana, "The legislature, mindful of its constitutional obligations under Article II, section 3, and Article IX of the Montana Constitution has enacted the Clean Air Act of Montana." 75-2-102 (1) MCA. That section further goes on to say, "It is the public policy of this state and the purpose of this chapter to achieve and maintain levels of air quality that will protect human heath and safety and, to the greatest degree practicable, prevent injury to plant and animal life and property . . . ." 75-2-102 (2) MCA.

The Board has broad authority to establish rules to protect human health, safety and the environment. 75-2-111 MCA. Specifically, the Board has broad power to control pollutants: "The board may establish the limitations of the levels, concentrations, or quantities of emissions of various pollutants from any source necessary to prevent, abate, or control air pollution." 75-2-203 (1), MCA. As this statement of reasonable necessity demonstrates, mercury is a threat to human health, safety and the environment, and the Board, therefore, has authority under the Clean Air Act of Montana to implement these rules.

Electric Utility Steam Generating Units (EGUs), or what are often referred to as coal-fired power plants, reported emitting 982 pounds of mercury into the air in Montana in 2001 or 92% of all mercury air emissions. In 2002, EGUs emitted

875 pounds. Nationally, EGUs cause over 40% of all anthropogenic mercury emissions. According to the U.S. Department of Energy, six new plants are proposed for Montana. Only three states – Illinois, Florida and Kentucky – have more proposed plants (http://www.netl.doe.gov/coal/refshelf/New%20Coal%20Plants%20(7-25-05).pdf). If the Department of Environmental Quality permits all of these plants at the same mercury emission rate as the Roundup Power Project, permitted by DEQ in 2003, mercury emissions in Montana could double.

Currently, EGUs are the only major industrial source of mercury emissions for which mercury is not regulated as a hazardous air pollutant under the Montana or Federal Clean Air Act. In 2005 the U.S. Environmental Protection Agency (EPA) adopted rules in which it treats mercury from EGUs as a nonhazardous air pollutant subject to a cap and trade regulatory system [70 Fed. Reg. 15,994 (March 29, 2005), (70 Fed. Reg. 28,606 (May 18, 2005)]. Currently, litigation challenging the mercury rule is pending against EPA by 14 states – California, Connecticut, Delaware, Illinois, Maine, Massachusetts, Minnesota, New Hampshire, New Jersey, New Mexico, New York, Pennsylvania, Vermont, and Wisconsin – and numerous public health groups, Indian tribes and environmental organizations. The U.S. EPA's Office of Inspector General found the rule to be flawed because it could result in toxic hotspots and did not fully analyze the impacts to children's health (http://www.epa.gov/oig/reports/2005/20050203-2005-P-00003.pdf). However, the rule allows states to adopt alternative regulatory programs for mercury emissions from EGUs. "States also have the flexibility to not participate in the trading program or require more stringent Hg emissions reductions. States that do not participate in the trading program can establish their own methodology for meeting State Hg budgets by obtaining reductions from affected Utility Units." [70 Fed. Reg. 28,622 (May 18, 2005)]

HUMAN HEALTH IMPACTS

Mercury is a potent neurotoxin at very low doses. Mercury readily crosses the placenta and accumulates in human fetal tissues. Studies show that infants are born with higher blood mercury levels than their mothers. Doctors have concluded that the neurotoxic effects of exposure to mercury in the womb are irreversible. [Foster, G.F., et al., "An overview of some reproductive toxicology studies conducted at Health Canada," Toxicology and Industrial Health 12:447-457(1996); Galster, W.A., "Mercury in Alaskan Eskimo Mothers and Infants,"

Environmental Health Perspective, 15:135-140(1976)]

Peer-reviewed scientific journals have found links between mercury contamination and learning disabilities, autism, decreased IQs, cardiac abnormalities, heart disease, heart attacks, immune system disorders, visual impairments, hearing deficits, motor and mental disturbances and more. [Some of the more recent studies include: Palmer, R.F., et al., "Environmental mercury release, special education rates, and autism disorder; an ecological study of Texas," Health and Place, doi:10.1016/j.healthplace.2004.11.005; Murata, K., et al., "Delayed brainstem auditory evoked potential latencies in 14-year-old children exposed to methylmercury," Journal of Pediatrics, 144 (2):177-183 (2004); Grandjean et al., "Cardiac Autonomic Activity in Methylmercury Neurotoxicity: 14-year follow-up of a Faroese Birth Cohort," Journal of Pediatrics, 144:169-176 (2004)].

A peer-reviewed study by the Mount Sinai School of Medicine's Center for Children's Health and the Environment found that the U.S. loses $8.7 billion annually due to the impact of mercury on children's brain development. The study estimates that between 317,000 and 637,000 of the four million children born each year in the United States are exposed in the womb to mercury levels above the EPA’s safety level.

WILDLIFE IMPACTS

Montana has statewide fish advisories for northern pike, lake trout, and walleye. (National Listing of Fish and Wildlife Advisories: http://map1.epa.gov). These advisories warn anglers against eating these fish due to mercury contamination. There are also numerous other advisories around the state that warn children and women of childbearing age not to eat other types of fish due to high levels of mercury.

In Montana, there are 418,836.80 acres of lakes and 1,280 miles of streams that are impaired due to mercury contamination. (Montana Department of Environmental Quality. EnviroNet. Watershed Information). When mercury falls on waterways it forms methylmercury. Methylmercury is a highly toxic form of mercury for humans.

It has been known for years that mercury threatens wildlife in aquatic ecosystems (from fish and waterbirds, to fish-eating mammals such as mink and otter). However, a recent study in the Journal of Ecotoxicology found that forest songbirds in northeastern North America have high levels of

methylmercury [Rimmer, C.C., et al., "Mercury Concentrations in Bicknell's Thrush and Other Insectivorous Passerines in Montane Forests of Northeastern North America," Ecotoxicology, 14, 223–240, (2005)]. The levels found were high enough to interfere with reproductive rates. The scientists theorize that the emissions from up-wind coal-fired power plants deposit mercury on leaves, which in turn are consumed by the food source for the songbirds.

TECHNOLOGICAL ACHIEVABILITY

Technology is currently available to control mercury emissions from EGUs. Activated Carbon Injection (ACI) can be purchased and used for mercury removal for all coal types. ACI has been used commercially to reduce mercury emissions from municipal solid waste incinerators for over twenty years. Already, full-scale ACI systems have been installed on over 40 U.S. coal-fired boilers in temporary ACI trials. These temporary trials have lasted between one week and 12 months. The results have demonstrated success at capturing over 90% of the mercury from plants using subbituminous coals.

Brominated sorbents have proven to be extremely successful at capturing mercury from subbituminous coals commonly found in Montana. Although brominated sorbents cost more per pound than nonbrominated sorbents used for bituminous coal, less of the brominated sorbent is necessary to capture more mercury. The net operating costs are substantially lower because of this increased capture.

At least four plants in the western U.S. have agreed to install ACI. One plant in Montana that will burn subbituminous western coal has already agreed to install ACI in the near future.

It is estimated that it costs less than $1.5 million to install ACI on a 500 megawatt plant. Annual operating costs vary but have been estimated to be $1 million to $2 million for the sorbent materials for a similar sized plant if a fabric filter is present for particulate control. This cost could be $2-3 million if only an electrostatic precipitator is present.

For reference, it is useful to compare this cost to the costs of other pollution control devices recently required in the permit issued by the Department for the Roundup Power Project (RPP). The RPP is a 780 megawatt proposal. The estimated capital costs of the required pollution controls for

the RPP were: PM10 control by a fabric filter, $32-36 million; SO2 control by a Spray Dry Absorber, $150-200 million; and NOx control by Selective Catalytic Reduction, $48-64 million. The Department's permit analysis for the RPP said that the annual cost of the required pollution controls were: PM10 control by a fabric filter, $8,126,000 per year; SO2 control by a Spray Dry Absorber, $22,658,000 per year; and NOx control by Selective Catalytic Reduction, $11,044,000 per year.

The technical feasibility of achieving a 1.5 pounds per trillion Btu (l.5 lb Hg/TBtu) standard of mercury control is also demonstrated in EPA's Information Collection Request database for EGUs. This database shows that plants across the country, both those using bituminous and subbituminous coals, reported emissions lower than 1.5 lb Hg/TBtu using various pollution control configurations. Some of the facilities that reported emissions lower than 1.5 lb Hg/Tbtu, where subbituminous coals were used in the tests, were AES Hawaii, Inc., Cholla and Craig, where emissions were 1.1256 lb Hg/Tbtu, 0.7940 lb Hg/Tbtu, and 1.0437 lb Hg/Tbtu, respectively.

5. Concerned persons may submit their data, views or arguments, either orally or in writing, at the hearings. Written data, views or arguments may also be submitted to the Board Secretary at Board of Environmental Review, 1520 E. Sixth Avenue, P.O. Box 200901, Helena, Montana, 59620-0901; faxed to (406) 444-4386; or emailed to ber@mt.gov, no later than 5:00 p.m., _____, 2005. To be guaranteed consideration, mailed comments must be postmarked on or before that date.

6. The Board of Environmental Review will preside over and conduct the hearing.

7. The Board maintains a list of interested persons who wish to receive notices of rulemaking actions proposed by this agency. Persons who wish to have their name added to the list shall make a written request that includes the name and mailing address of the person to receive notices and specifies that the person wishes to receive notices regarding: air quality; hazardous waste/waste oil; asbestos control; water/wastewater treatment plant operator certification; solid waste; junk vehicles; infectious waste; public water supplies; public sewage systems regulation; hard rock (metal) mine reclamation; major facility siting; opencut mine reclamation; strip mine reclamation; subdivisions; renewable energy

grants/loans; wastewater treatment or safe drinking water revolving grants and loans; water quality; CECRA; underground/above ground storage tanks; MEPA; or general procedural rules other than MEPA. Such written request may be mailed or delivered to the Board Secretary at Board of Environmental Review, 1520 E. Sixth Ave., P.O. Box 200901, Helena, Montana 59620-0901; faxed to (406) 444-4386; emailed to ber@mt.gov; or may be made by completing a request form at any rules hearing held by the Board.

8. The bill sponsor notice requirements of 2-4-302, MCA, do not apply.

Reviewed by: BOARD OF ENVIRONMENTAL REVIEW

_____ BY: _____

JOHN F. NORTH
Rule Reviewer

JOSEPH W. RUSSELL, M.P.H.,
Chairman

Certified to the Secretary of State _____, 2005.